



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,210	03/03/2005	Hirokazu Kobayashi	MAT-8668US	7505
23122	7590	12/13/2007		
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			EXAMINER ELPENORD, CANDAL	
			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			12/13/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/526,210	Applicant(s) KOBAYASHI ET AL.	
	Examiner Candal Elpenord	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03 March 2005</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1, 3-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya et al (US 2002/0184387 A1) in view of Ma et al (US 6,856,591 B1) in further view of Yip et al (US 6,954,435 B1) and

**Regarding claim 1**, Yamaya et al. discloses a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), for operating a plurality of network connection apparatuses (fig. 2, Router 10, Router 11, recited in paragraph 0047) connected to a local area network virtually (fig. 110, fig. 11, VLAN, recited in paragraph 0086) as one network connection apparatus ("VLAN", recited in paragraph 0107), the network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), comprising: a state monitor section (fig. 2, VRRP Processing Section 23, recited in paragraph 0047, and fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) for managing an operating state (Managing a VRRP state", recited in paragraph 0049) as a network connection apparatus ("Master state of a logical port", recited in paragraph 0048); a message processing section ("fig. 2, IP Processing Section 22 and MAC FRAME Processing Section 21, recited in paragraph 0048) for performing an exchange process of an advertisement message ("prepares and transmits of advertisement", recited in paragraph 0059-0060) representative of the operating state during operation as a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046); and a master transition timer section (fig. 4, Time Processing Section 23d, "carries out count of master timer", recited in paragraph 0049) for counting ("carries out a count", recited in paragraph 0049) for a timing of transition of from a standby state (fig. 9, "changes of the state of router from

backup to mater state", recited in paragraph 0063-0066) into an operating state (fig. 9, "changes of the state of router from backup to mater state", recited in paragraph 0063-0066) as a network connection apparatus (fig. 3, Packet Transmitting Section 21b, recited in paragraph 0048); whereby, when the state monitor section ("VRRP managing section 23c monitors the master down timer", recited in paragraph 0058-0059) decides not in an operating state ("decides that trouble has occurred", recited in paragraph 0058-0061), **regarding claim 3**, a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), further comprising a link monitor section (fig. 4, VRRP Status Managing Section 23c, "monitoring", recited in paragraph 0058) for evaluating ("decides that trouble has occurred or line has been disconnected", recited in paragraph 0059) a connectability ("transmission to/from an external network", recited in abstract, lines 4-10) with an external network (fig. 1, Internet 1, recited in paragraph 0046), wherein in a case the link monitor section (fig. 4, VRRP Status Managing Section 23c, "monitoring", recited in paragraph 0058) decides the connectability as a predefined value or higher ("priority advertisement", recited in paragraph 0120-0122) when the master transition timer section (fig. 4, Time Processing Section 23d, "carries out count of master timer", recited in paragraph 0049) goes into a time-up ("expiration of the timer", recited in paragraphs 0065-0066), the state monitor section (fig. 2, VRRP Processing Section 23, recited in paragraph 0047, and fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) sends an advertisement message ("transmission of advertisement packet", recited in paragraph 0065) instructing for transition ("changes state of router", recited in paragraph 0120-0122) from operating

state ("master state", recited in paragraph into standby state ("backup", recited in paragraph 0120-0122) to the network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), operating as a network connection apparatus ("master state", recited in paragraph 0120-0121), **regarding claim 4**, a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), further comprising a link monitor section (fig. 4, VRRP Status Managing Section 23c, "monitoring", recited in paragraph 0058) for evaluating a connectability ("transmission to/from an external network", recited in abstract, lines 4-10, "decides that trouble has occurred or line has been disconnected", recited in paragraph 0059) with an external network (fig. 1, Internet 1, recited in paragraph 0046), wherein in a case the state monitor section (fig. 2, VRRP Processing Section 23, recited in paragraph 0047, and fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) decides operating as a network connection apparatus and the link monitor section decides the connectability lower than a predefined value ("priority advertisement", recited in paragraph 0121-0125), the state monitor section instructs the message processing section ("fig. 2, IP Processing Section 22 and MAC FRAME Processing Section 21, recited in paragraph 0048) to send an advertisement message ("transmitting an instruction", recited in paragraph 0135) representative of an operating state as a network connection apparatus to the network connection apparatus on a same local area network (fig. 10, VLAN system, recited in paragraph 0073, recited in paragraph "LAN", recited in paragraph 0166), **regarding claim 5**, a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), further

comprising a link monitor section (fig. 4, VRRP Status Managing Section 23c, "monitoring", recited in paragraph 0058) for evaluating a connectability with an external network, wherein in a case the state monitor section (fig. 2, VRRP Processing Section 23, recited in paragraph 0047, and fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) decides operating as a network connection apparatus and the link monitor section (fig. 4, VRRP Status Managing Section 23c, "monitoring", recited in paragraph 0058) decides the connectability lower than a predefined value, the state monitor section instructs ("transmitting an instruction", recited in paragraph 0135) the message processing section ("fig. 2, IP Processing Section 22 and MAC FRAME Processing Section 21, recited in paragraph 0048) to send an advertisement message("transmitting an instruction", recited in paragraph 0135) requesting for a transition ("transition notification", recited in paragraph 0150) from standby state (backup state router", recited in paragraph 0150) into operating state ("master state", recited in paragraph 0150) to the network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), on a same local area network(fig. 10, VLAN system, recited in paragraph 0073 , recited in paragraph "LAN", recited in paragraph 0166), **regarding claim 6**, a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), wherein the transition request ("transmission of advertisement packet with priority where the master router quits", recited in paragraph 0120-0125) from operating state (master state", recited in paragraph 0120-0125) into standby state ("backup state", recited in paragraph 0120-0125) by the state monitor section (fig. 2, VRRP Processing Section 23, recited in paragraph 0047, and

fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) is the advertisement message set with a possessed priority at a highest ("transmission of advertisement packet with priority where the master router quits", recited in paragraph 0120-0125), **regarding claim 7**, a network connection apparatus(fig. 1, Virtual Router System, recited in paragraph 0045-0046), wherein the advertisement message representative of the operating state ("transmission of advertisement packet with priority where the master router quits", recited in paragraph 0120-0125), in a case the state monitor section (fig. 2, VRRP Processing Section 23, recited in paragraph 0047, and fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) decides operating as a network connection apparatus and the link monitor section fig. 4, VRRP Status Managing Section 23c, "monitoring", recited in paragraph 0058) decides the connectability lower than a predefined value, is set with a priority at a lowest ("advertisement of packet with priority zero", recited in paragraphs 0120-0125).

Yamaya et al. discloses all the claimed limitation with the exception of the following features: **regarding claim 1**, a priority comparing section for acquiring priority information representative of a priority to operate as a network connection apparatus from the advertisement message received, and comparing same with priority information possessed.

However, Ma et Al. in a similar field of endeavor discloses the following features: **regarding claim 1**, a priority comparing section ("event determiner based on based messages and priority information", recited in col. 4, lines 46-53) for acquiring priority information ("determines priority information from messages", recited in col. 4, lines 46-



53) representative of a priority to operate ("changes of state in response to", recited in col. 4, lines 46-59) as a network connection apparatus ("state machine with active and standby device", recited in col. 4, lines 36-46) from the advertisement message received ("receipt of hello messages", recited in col. 4, lines 47-53), and comparing same ("priority determiner that compares received Hello messages with the standby priority of a network device", recited in col. 15, lines 57- col. 16, lines 9) with priority information possessed ("upon binding the device with highest priority becomes the active", recited in col. 3, lines 63- col. 4, lines 14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features as taught of Yamaya et al. in order to provide routing redundancy in the event of failure (See col. 3, lines 63- col. 4, lines 8 for motivation).

Yamaya and Ma are however silent with regard to the arbitration process as recited in **claim 1**.

However, Yip et al. in a similar field of endeavor discloses a priority comparing step ("comparing priority values", recited in col. 4, lines 23-67 and col. 5, lines 1-8) of comparing between priority information ("comparing priority values of SRP Routers", recited in col. 4, lines 59-67 and col. 5, lines 1-8), in the advertisement message ("trade of SRP PDU at specified time interval containing priority values", recited in col. 4, lines 23-40) representative of a priority to operate as a network connection apparatus (fig. 3, Selection of Router with highest priority, recited in col. 5, lines 16-51) and priority information possessed; whereby an arbitration process ("election process to arbitrate based on priority", recited in col. 2, lines 26-37) is commenced at between the network

connection apparatuses (fig. 2, Routers R3 210, R4 120, recited in col. 3, lines 54-63) in standby state ("standby routers", recited in col. 3, lines 54-63) to transit to operating state (take over by the standby router", recited in col. 2, lines 2, lines 37-49) at a time that the priority possessed ("Router trades PDU that contains priority values", recited in col. 4, lines 23-40) is decided higher ("Router trades PDU that contains priority values", recited in col. 4, lines 23-40) in the priority comparing step ("comparing priority values and elects router with highest priority", recited in col. 4, lines 23-67 and col. 5, lines 1-8). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Yamaya et al. with Ma et al. by using features as taught by Yip et al. in order provide selection of a master router by using parameter values (See Col. 2, lines 11-25 for motivation).

5. **Claims 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya et al (US 2002/0184387 A1) in view of Ma et al (US 6,856,591 B1) and view of Yip et al (US 6,954,435 B1) as applied to claim 1 above, and further in view of Srikanth et al (EP 1006702 A2).

**Regarding claim 6**, Yamaya et al. discloses a network connection apparatus (fig. 1, Virtual Router System, recited in paragraph 0045-0046), wherein the transition request ("transmission of advertisement packet with priority where the master router quits", recited in paragraph 0120-0125) from operating state (master state", recited in paragraph 0120-0125) into standby state ("backup state", recited in paragraph 0120-0125) by the state monitor section (fig. 2, VRRP Processing Section 23, recited in

paragraph 0047, and fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) is the advertisement message set with a possessed priority at a highest ("transmission of advertisement packet with priority where the master router quits", recited in paragraph 0120-0125).

Yamaya et al, Ma et al, Yip et al are however silent with respect to the following features: the master transition timer section is set with a skew time based on the priority set.

However, Srikanth et al. in a similar field of endeavor discloses: the master transition timer section is set with a skew time section (fig. 3,, Master Router 215, recited in paragraph 0019, "setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) based on the priority set ("transmission of VRRP advertisement with priority greater than master router", recited in paragraph 0010). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Yamaya et al. with Ma et al. Yip et al. by using features as taught by Srikanth et al. in order to provide routing redundancy in case a router fails (see abstract, lines 1-19 for motivation).

6. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya et al (US 2002/0184387 A1) in view of Yip et al (US 6,954,436 B1).

**Regarding claim 8**, Yamaya et al. discloses a network connection switching (fig. 11, Switching Hub 7, recited in paragraph 0089) method ("Virtual router connecting plural networks", recited in paragraph 0009-0010) comprising: a state monitoring step

(fig. 4, VRRP Status Managing Section 23c, recited in paragraph 0049) of deciding whether a plurality of network connection apparatuses (plurality of port connected to the routers", recited in paragraph 0098, lines 1-12) connected to a local area network (fig. 13, VLAN, recited in paragraph 0099) are in operating state ("mater state", recited in paragraph 0049) or in standby state ("backup state", recited in paragraph 0049) as a network connection apparatus to operate virtually as one network connection apparatus; a step of receiving an advertisement message ("transition packet" from the back up who becomes the active router", recited in paragraph 0130) from a second network connection apparatus (fig. 11, Router 11, "backup router", recited in paragraph 0130) in operating state as a network connection apparatus by a first network connection apparatus (fig. 11, Router 10, recited in paragraph 0130) decided as standby state in the decision ("backup state", recited in paragraph 0049).

Yamaya et al. discloses all the claimed limitation with the exception of being silent with respect to the following features: a priority comparing step of comparing between priority information in the advertisement message representative of a priority to operate as a network connection apparatus and priority information possessed; whereby an arbitration process is commenced at between the network connection apparatuses in standby state to transit to operating state at a time that the priority possessed is decided higher in the priority comparing step.

However, Yip et al. in as similar field of endeavor discloses: a priority comparing step ("comparing priority values", recited in col. 4, lines 23-67 and col. 5, lines 1-8) of comparing between priority information ("comparing priority values of SRP Routers",

recited in col. 4, lines 59-67 and col. 5, lines 1-8), in the advertisement message ("trade of SRP PDU at specified time interval containing priority values", recited in col. 4, lines 23-40) representative of a priority to operate as a network connection apparatus (fig. 3, Selection of Router with highest priority, recited in col. 5, lines 16-51) and priority information possessed; whereby an arbitration process ("election process to arbitrate based on priority", recited in col. 2, lines 26-37) is commenced at between the network connection apparatuses (fig. 2, Routers R3 210, R4 120, recited in col. 3, lines 54-63) in standby state ("standby routers", recited in col. 3, lines 54-63) to transit to operating state (take over by the standby router", recited in col. 2, lines 37-49) at a time that the priority possessed ("Router trades PDU that contains priority values", recited in col. 4, lines 23-40) is decided higher ("Router trades PDU that contains priority values", recited in col. 4, lines 23-40) in the priority comparing step ("comparing priority values and elects router with highest priority", recited in col. 4, lines 23-67 and col. 5, lines 1-8). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Yamaya et al. by using features as taught by Yip et al. in order provide selection of a master router by using parameter values (See Col. 2, lines 11-25 for motivation).

7. **Claims 2, 9-15, 16-19, 21-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al (US 6,856,591 B1) in view of Yamaya et al (US 2002/0184387 A1) in further view of Srikanth et al (EP 1006702 A2).

**Regarding claim 9**, Ma et al. discloses a network connection switching (fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15) comprising: a state monitoring step (fig. 9, Event Determiner 91, recited in col. 15, lines 57- col. 16, lines 9, State Controller 93, recited in col. 16, lines 24-32) of deciding whether a plurality of network connection apparatuses (fig. 3, Plurality of network devices such as "Members", recited in col. 7, lines 36-60) connected to a local area network (fig.3, LAN or management VLAN, recited in col. 6, lines 21-28) are in operating state ("active commander", recited in col. 6, lines 43-60) or in standby state ("standby commander", recited in col. 6, lines 43-60) as a network connection apparatus (fig. 3, Command Active 21, recited in col. 6, lines 43-60) to operate virtually as one network connection apparatus (fig. 3, Cluster 20 Apparatus, recited in col. 6, lines 29-42); a step of receiving an advertisement message ("the standby commander sending out a message to notify network devices of a take over", recited in col. 14, lines 59 – col. 15, lines 17) from a second operating network connection apparatus (fig. 3, Standby Device 23, recited in col. 6, lines 43-60, "the standby device who becomes the active device", recited in col. 14, lines 59 – col. 15, lines 17) in operating step ("the standby device who becomes the active device", recited in col. 14, lines 59 – col. 15, lines 17) as a network connection apparatus (fig. 3, Standby Device 23, recited in col. 6, lines 43-60) by a first network connection apparatus (fig. 3, Command Active 21, recited in col. 6, lines 43-60, and "taking over when the active device fails", recited in col. 8, lines 54-67) decided as standby state in the decision ("the active devices becomes the

standby", recited in col. 7, lines 25-35); a step of counting ("timer monitoring and counting", recited in col. 13, lines 41-65) a master down time ("counting during which the last-seen Hello messages from the Active Commander device", recited in col. 13, lines 13, lines 22-65) for a decision as to whether the advertisement message is to be received in a predetermined time ("Hello messages not received within the hold time", recited in col. 13, lines 41-65) from the second network apparatus ("the standby commander device sending out a coup message to notify other devices", recited in col. 14, lines 59 - col. 15, lines 15); a step of notifying of a transition ("state transition from active to standby", recited in col. 13, lines 66 - col. 14, lines 58) to operating state from the first network apparatus (fig. 3, Command Active 21, (fig. 3, Command Active 21, recited in col. 6, lines 43-60, and "taking over when the active device fails", recited in col. 8, lines 54-67). to the second network apparatus (fig. 3, Standby Device 23, recited in col. 6, lines 43-60) when the master down time expires ("expiry of the active timer of the commanding device", recited in col. 13, lines 22-65); a priority comparing step ("priority determiner that compares received Hello messages with the standby priority of a network device", recited in col. 15, lines 57- col. 16, lines 9) of comparing between priority information ("priority determiner that compares received Hello messages with the standby priority of a network device", recited in col. 15, lines 57- col. 16, lines 9), in the advertisement message ("event determiner determines priority information from a hello received messages", recited in col. 4, 47-53), representative of a priority ("the state controller responsive to the event determiner changes the state from standby to active", recited in col. 16, lines 24-59) to operate as a network connection apparatus (fig. 9,

Network Device 70, recited in col. 15, lines 18-33) and priority information possessed ("priority of network device 70, recited in col. 15, lines 66 – col. 16, lines 9); and a step of comparing between a remaining time of the master down time and a skew time calculated shorter in time as the priority possessed is higher when the priority possessed is higher in the priority comparing step, and replacing the master down time with the skew time when the skew time is shorter, **regarding claim 10**, a network connection switching (fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), further comprising a step of detecting (fig. 9, Event Determiner 91, "determines priority information of received hello messages", recited in col. 16, lines 10-23) whether a connectability (fig. 3, Connection devices, 35, and 43, recited in col. 7, lines 36-57, "monitor of hello messages", recited in col. 15, lines 57- col. 16, lines 9) with an external network (fig. 3, Management Network 43, recited in col. 7, lines 36-57) is equal to or greater than a predefined value ("higher priority message form active commander", recited in col. 15, lines 57- col. 16, lines 9) or not, and a step of permitting the notification ("coup messages and resign messages", recited in col. 13, lines 4-21), of a transition to operating state ("state transition", recited in col. 16, lines 24-59), from the first network apparatus (fig. 3, Command Active 21, recited in col. 6, lines 43-60) to the second network apparatus (fig. 3, Standby Device 23, recited in col. 6, lines 43-60, "taking over when the active device fails", recited in col. 8, lines 54-67) only when the connectability ("higher priority message", recited in col. 15, lines 1-17) is equal to or greater than the predefined value ("higher priority message



form active commander", recited in col. 15, lines 57- col. 16, lines 9) in the detection at the first network connection apparatus ("active commander", recited in col. 15, lines 1-17), **regarding claim 11**, a network connection switching method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), further comprising a transition request step ("sending a resign message", recited in col. 13, lines 4-21) for the second network connection apparatus ("current active commander device", recited in col. 15, lines 1-17) to request ("sending a resign message", recited in col. 13, lines 4-21) the first network connection apparatus ("former commanding device", recited in col. 15, lines 1-17) to transit to operating state ("active commander", recited in col. 15, lines 1-17) when the connectability of the second network connection apparatus ("current active commander device", recited in col. 15, lines 1-17) is not equal to or greater than the predefined value ("higher priority message", recited in col. 15, lines 1-17), fig. 8, Priority Field 71, "network with higher priority wins", recited in col. 22-40), **regarding claim 12**, network connection switching (fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), further comprising a step of temporarily setting the priority possessed at a highest ("updates of cluster information and reconstruct", recited in col. 16, lines 50 - col. 17, lines 3) when the priority possessed is higher ("device with higher priority", recited in col. 4, lines 8-16) in the priority comparing step ("priority determiner that compares received Hello messages with the standby priority of a network device", recited in col. 15, lines 57- col. 16, lines 9) at the first network connection apparatus ("active commander device", recited in col. 4,

lines 8-16), to notify the priority information possessed ("transmits of heartbeat messages that includes port status information", recited in col. 17, lines 26-38) from the first network connection apparatus ("active commander device", recited in col. 17, lines 26-38) to the second network connection apparatus (other devices in the standby mode, recited in col. 17, lines 26-38) and other standby network connection apparatus (other devices in the standby mode, recited in col. 17, lines 26-38) in the step of a notification ("resign and coup messages", recited in col. 15, lines 1-17) of transition to operating state ("state transition", recited in col. 16, lines 24-59), **regarding claim 13**, a network connection switching (fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), wherein, in the transition request step ("sending a resign message", recited in col. 13, lines 4-21), the second network connection apparatus ("current active commander device", recited in col. 15, lines 1-17) makes a notification("advertise of state information with a priority value", recited in col. 13, lines 4-40) with the priority possessed rendered a lowest ("priority field used to elect device", recited in col. 13, lines 22-40), **regarding claim 14**, a network connection switching ( fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), wherein the priority possessed higher ("device with higher priority", recited in col. 4, lines 8-16) is returned to a value ("updates and reconstruct of cluster information", recited in col. 16, lines 50 – col. 17, lines 3) immediately preceding to a setting at a highest ("updates of cluster information and

reconstruct", recited in col. 16, lines 50 - col. 17, lines 3-cluster information includes priority of information) after a transition ("state transition", recited in col. 16, lines 24-59) of the first network connection apparatus ("active commander device", recited in col. 17, lines 26-38) from standby state ("standby", recited in col. 15, lines 1-17) into operating state ("former commander device coming back to become the active device", recited in col. 15, lines 1-17), **regarding claim 23**, network connection switching (fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), further comprising a step of temporarily setting the priority possessed at a highest ("updates of cluster information and reconstruct", recited in col. 16, lines 50 - col. 17, lines 3) when the priority possessed is higher ("device with higher priority", recited in col. 4, lines 8-16) in the priority comparing step ("priority determiner that compares received Hello messages with the standby priority of a network device", recited in col. 15, lines 57- col. 16, lines 9) at the first network connection apparatus ("active commander device", recited in col. 4, lines 8-16), to notify the priority information possessed ("transmits of heartbeat messages that includes port status information", recited in col. 17, lines 26-38) from the first network connection apparatus ("active commander device", recited in col. 17, lines 26-38) to the second network connection apparatus (other devices in the standby mode, recited in col. 17, lines 26-38) and other standby network connection apparatus (other devices in the standby mode, recited in col. 17, lines 26-38) in the step of a notification ("resign and coup messages", recited in col. 15, lines 1-17) of transition to operating state ("state transition", recited in col. 16, lines 24-

59), **regarding claim 24**, a network connection switching (fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15), wherein the priority possessed higher ("device with higher priority", recited in col. 4, lines 8-16) is returned to a value ("updates and reconstruct of cluster information", recited in col. 16, lines 50 – col. 17, lines 3) immediately preceding to a setting at a highest ("updates of cluster information and reconstruct", recited in col. 16, lines 50 - col. 17, lines 3-cluster information includes priority of information) after a transition ("state transition", recited in col. 16, lines 24-59) of the first network connection apparatus ("active commander device", recited in col. 17, lines 26-38) from standby state ("standby", recited in col. 15, lines 1-17) into operating state ("former commander device coming back to become the active device", recited in col. 15, lines 1-17).

Ma et al. discloses all the subject matter of the claimed invention with the exception of being silent with regard to the following features: **regarding claim 9**, a step of counting a master down time for a decision as to whether the advertisement message is to be received in a predetermined time from the second network apparatus; a step of notifying of a transition to operating state from the first network apparatus to the second network apparatus when the master down time expires.

However, Yamaya et al. in a similar field of endeavor discloses the following features: **regarding claim 9**, a step of counting a master down time ("counting of the master down timer", recited in paragraph 0059) for a decision as to whether the advertisement message is to be received ("receiving a transition notification from a

substitute port", recited in paragraphs 0141-0142) in a predetermined time ("predetermined time period", recited in paragraph 0049) from the second network apparatus (fig. 18, substitute port P9, recited in paragraphs 0141-0142); a step of notifying of a transition ("notification transition from the backup to the master that backup has changed to master", recited in paragraph 0150) to operating state from the first network apparatus to the second network apparatus when the master down time expires ("changes the router to the master router when the master down timer has expired", recited in paragraph 0138). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Ma et al. by using features as taught by Yamaya et al. in order to connect a plurality of networks using virtual router so that routing redundancy can be provided to guard against errors (See paragraph 000—0010 for motivation).

**Regarding claim 15**, Ma et al. discloses a network connection switching ( fig. 1A, 1B, Hub Switch 6, recited in col. 2, lines 12-18 and fig. 3, recited in col. 6, lines 21-28) method ("method for providing managing a cluster of devices", recited in abstract, lines 1-15).

Ma et al. and Yamaya et al. disclose all the claimed limitation with the exception of being silent with regard to the following features: **regarding claim 9**, a step of comparing between a remaining time of the master down time and a skew time calculated shorter in time as the priority possessed is higher when the priority possessed is higher in the priority comparing step, and replacing the master down time with the skew time when the skew time is shorter, **regarding claim 15**, further

comprising a step of replacing the master down time with the skew time at a time that the first network connection apparatus receives the transition request from the second network connection apparatus,

However, Srikanth et al in a similar field of endeavor discloses a step of comparing between a remaining time of the master down time ("failing to receive a VRRP within specified period of time of the master down time interval", recited in paragraph 0018, lines 28-39) and a skew time calculated shorter in time ("calculated skew time", recited in paragraph 0018, lines 35-52) as the priority possessed is higher ("port with the highest priority becomes the master router", recited in paragraphs 0018-0019) when the priority possessed is higher in the priority comparing step ("transmission of VRRP advertisement with priority greater than master router", recited in paragraph 0010) and replacing ("setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) the master down time (fig. 3, Master Down time" and Master Router 215, recited in paragraph 0019) with the skew time ("setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) when the skew time is shorter ("with priority zero the skew time becomes shorter", recited in paragraph 0018, lines 35-52, **regarding claim 15**, a step of replacing the master down time with the skew time section (fig. 3,, Master Router 215, recited in paragraph 0019, "setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) at a time that the first network connection apparatus (fig. 1, fig. 3, Master Router 215, recited in paragraph 0018-0019) receives the transition request ("transmission of a VRRP advertisement", recited in paragraph 0019) from the second network connection

apparatus (fig. 1, fig. 3, Backup Router 210, recited in paragraph 0018-0019).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Ma et al. with Yamaya et al. by using features as taught Srikanth et al. in order to provide routing redundancy in case a router fails (see abstract, lines 1-19 for motivation).

8. **Claims 2, 16-19, 21-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al (US 7,209,435 B1) in view of Srikanth et al (EP 1006702 A2).

**Regarding claim 2**, Kuo et al. discloses a network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55) for operating a plurality of network connection apparatuses (fig. 4, Plurality of layer devices , Switch 418 and 420, recited in col. 8, lines 43-55) connected to a local area network (fig. 3, LAN, recited in col. 8, lines 1-15, and fig. 4, lines 43-55) as one network connection apparatus (fig. 4, VLAN, recited in col. 8, lines 43-55), the network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55) comprising: a state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "providing failover protection" recited in col. 7, lines 3-40) (fig. 3, Switches 304 and 306, "exchanged of health check health packets", recited in col. 7, lines 24-40) for managing an operating state as a network connection apparatus ("health check packets to determine live connections", recited in col. 7, lines 24-57); a message processing section ("information taken into account to determine if

device should transition into master mode”, recited in col. 7, lines 57-66, and “transmission of hello packets”, recited in col. 9, lines 35-45) for performing an exchange process of an advertisement message (“exchanged of health check packets”, recited in col. 7, lines 24-56, and “transmission of hello packets”, recited in col. 9, lines 35-45) representative of the operating state (“priority information contained within the Hello packets”, recited in col. 9, lines 35-60) during operation as a network connection apparatus; an advertisement timer (“count down variable used to trigger the transmission of Hello packets”, recited in col. 12, lines 18-36) for counting for a timing (“Hello counter and timer variable”, recited in col. 12, lines 18-36) to send (“transmission of hello packets”, recited in col. 9, lines 35-45) the advertisement message at a regular interval (“count down variable used to trigger the transmission of Hello packets”, recited in col. 12, lines 18-36); a message timer section (fig. 6, Counter Variable C1 606, recited in col. 11, lines 12-15 and col. 12, lines 18-36) for counting a time (“count variable and time”, recited in col. 11, lines 35-52) to decide whether the advertisement message (“Hello packet”, recited in col. 11, lines 35-52) is received in a predetermined time (“the time threshold to receive a Hello packet”, recited in col. 11, lines 35-52) from the network connection apparatus operating as a network connection apparatus (“device in the master mode”, recited in col. 11, lines 35-52); and a priority comparing section (“priority value determines whether a device is in master or backup”, col. 6, lines 66- col. 7, lines 3, “extracting of priority of value within the Hello packets”, recited in col. 13, lines 58-67 and col. 14, lines 1-7) for acquiring priority information (“extracting priority value”, recited in col. 11, lines 60-67) representative of a priority (“priority value



determines whether a device is in master or backup", col. 6, lines 66- col. 7, ,lines 3) to operate as a network connection apparatus (fig. 4, VSRP master switch 406, recited in col. 8, lines 43-55) from the advertisement message received ("Hello packets with priority value", recited in col. 11, lines 60-67), and comparing same with priority information possessed ("performs of check to determine if the device has higher priority value than priority value in the received Hello packet", recited in col. 11, lines 60-67), and a master transition timer section ("Hello counter and timer associated with master mode or master confirm mode", recited in col. 12, lines 18-55) for counting for a timing of transition of from a standby state ("backup mode", recited in col. 12, lines 18-55) into an operating state ("transition to master mode" , recited in col. 12, lines 18-55) as a network connection apparatus (fig. 4, VSRP Master Switch A 460, recited in col. 8, lines 43-55) ; whereby, when the state monitor section decides not in an operating state, the priority comparing section ("priority value determines whether a device is in master or backup", col. 6, lines 66- col. 7, lines 3, "extracting of priority of value within the Hello packets", recited in col. 13, lines 58-67 and col. 14, lines 1-7) in a case of decision ("master mode when priority is higher", recited in col. 4, lines 3-17) the priority possessed is higher ("when a Hello packet received and analyzation of data values", recited in col. 12, lines 65 – col. 13, lines 25 and "calculates higher priority value than the priority value within the hello packets) than the priority information in the received advertisement message ("the switch having higher priority value than the priority value of the Hello packets", recited in col. 12, lines 65 – col. 13, lines 25) compares between a remaining time ("time threshold to receive a Hello packet", recited in col. 11, lines 41-52)

of the message timer section ("information taken into account to determine if device should transition into master mode", recited in col. 7, lines 57-66, and "transmission of hello packets", recited in col. 9, lines 35-45).

**Regarding claim 16**, Kuo et al. discloses a network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55), further comprising a link monitor section ("priority calculation of software switch", recited in col. 14, lines 38-67) of for evaluating a connectability ("priority value allowing a switch to realize if a connection is broken", recited in col. 17, lines 6-18) ("measurement taken of the available bandwidth", recited in col. 14, lines 56-67) with an external network ("provides connection to an outside network", recited in col. 9, lines 9-25), wherein in a case the link monitor section decides the connectability ("connecting interface", recited in col. 14, lines 56-67) as a predefined value ("bandwidth threshold set", recited in col. 14, lines 67 – col. 15, lines 1-70 or higher ("bandwidth exceeding the threshold", recited in col. 15, lines 8-20) when the master transition timer section goes into a time-up ("time required to transition into master mode", recited in col. 18-22, "time to received a hello packets from a device in the master mode", recited in col. 11, lines 35-52), the state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "proving failover protection" recited in col. 7, lines 3-40) sends (fig. 3, Switches 304 and 306, "exchanged of health check health packets", recited in col. 7, lines 24-40) an advertisement message ("received of Hello packets from a device", recited in col. 11, lines 60-67) instructing for transition from operating state ("master mode", recited in col. 7, lines 57-67) into standby state ("backup mode", recited in col. 7, lines 57-67) to the

network connection apparatus (fig. 4, VSRP master switch 1 406, recited in col. 8, lines 43-55) operating as a network connection apparatus (fig. 4, VLAN, recited in col. 8, lines 43-55), **regarding claim 17**, a network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55), further comprising a link monitor section ("priority value allowing a switch to realize if a connection is broken", recited in col. 17, lines 6-18) for evaluating a connectability with an external network (fig. 2, Wide Area Network 220, recited in col. 6, lines 26-41, "provides connection to an outside network", recited in col. 9, lines 9-25), wherein in a case the state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "proving failover protection" recited in col. 7, lines 3-40) decides operating as a network connection apparatus ("connecting interface", recited in col. 14, lines 56-67) and the link monitor section ("priority value allowing a switch to realize if a connection is broken", recited in col. 17, lines 6-18) decides the connectability ("connecting interface", recited in col. 14, lines 56-67) lower than a predefined value ("bandwidth not exceeding the low threshold", recited in col. 24-34), the state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "proving failover protection" recited in col. 7, lines 3-40) instructs the message processing section (fig. 5, VSRP aware switch 508, recited in col. 10, lines 7-19) to send an advertisement message ("floods packets up on receipt", recited in col. 10, lines 7-19) representative of an operating state ("Priority value within a Hello packet", recited in col. 11, lines 60- col. 12, lines 15) as a network connection apparatus (fig. 4, Master VSRP switch, recited in col. 12, lines 1-15) to the network connection apparatus (fig. 4, VLAN 414, recited in col. 8, lines 1-22) on a same local

area network (fig. 4, VLAN 414, recited in col. 8, lines 1-22), **regarding claim 18**, a network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55), further comprising a link monitor section ("monitor and respond to network health issues", recited in col. 17, lines 6-18, "priority value allowing a switch to realize if a connection is broken", recited in col. 17, lines 6-18) for evaluating a connectability ("modify of priority value with regard to connection quality", recited in col. 9, lines 61- col. 10, lines 6) with an external network ( fig. 2, Wide Area Network 220, recited in col. 6, lines 26-41, "provides connection to an outside network", recited in col. 9, lines 9-25), wherein in a case the state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "proving failover protection" recited in col. 7, lines 3-40) decides operating as a network connection apparatus and the link monitor section decides the connectability lower than a predefined value state ("Priority value within a Hello packet", recited in col. 11, lines 60- col. 12, lines 15) , the state monitor section instructs the message processing section (fig. 5, VSRP aware switch 508, recited in col. 10, lines 7-19) to send an advertisement message ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited in col. 11, lines 60- col. 12, lines 15) requesting for a transition ("transition to master/backup", recited in col. 8, lines 46-61) from standby state ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited in col. 11, lines 60- col. 12, lines 15) into operating state ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited

in col. 11, lines 60- col. 12, lines 15) to the network connection apparatus on a same local area network(fig. 4, VLAN 414, recited in col. 8, lines 1-22), **regarding claim 19**, a network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55), wherein the transition request ("transition", recited in col. 8, lines 43-55) from operating state ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited in col. 11, lines 60- col. 12, lines 15), into standby state ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited in col. 11, lines 60- col. 12, lines 15), by the state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "proving failover protection" recited in col. 7, lines 3-40) is the advertisement message set with a possessed priority at a highest ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited in col. 11, lines 60- col. 12, lines 15),, **regarding claim 21**, a network connection apparatus (fig. 1, , fig. 4, VLAN Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55), wherein the transition request ("transition", recited in col. 8, lines 43-55) from operating state into standby state by the state monitor section(fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, "proving failover protection" recited in col. 7, lines 3-40) is the advertisement message set with a possessed priority at a highest ("transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode", recited in col. 11, lines 60- col. 12, lines 15),, **regarding claim 22**, a network connection apparatus (fig. 1, , fig. 4, VLAN

Apparatus, recited in col. 5, lines 23-42 and col. 8, lines 43-55), wherein the advertisement message representative of the operating state (“transmission of Hello packet with priority value which determines as to whether a device operates in the master or the backup mode”, recited in col. 11, lines 60- col. 12, lines 15), in a case the state monitor section (fig. 3, VSRP aware Switch A 310, VSRP aware Switch B 312, “proving failover protection” recited in col. 7, lines 3-40) decides operating as a network connection apparatus and the link monitor section (“monitor and respond to network health issues”, recited in col. 17, lines 6-18, “priority value allowing a switch to realize if a connection is broken”, recited in col. 17, lines 6-18) decides the connectability lower than a predefined value (“determining the number of live connections”, recited in col. 7, lines 24-40), is set with a priority at a lowest (“extracting a priority value within a hello packet”, recited in col. 11, lines 60-67).

Kuo et al. discloses all the subject matter of the claimed invention with the exception of being silent with respect to the following features: **regarding claim 2**, a skew time calculated based on the priority possessed, to set the skew time to the master transition timer section when the skew time is shorter, so that, when the master transition timer section goes into a time-up, the state monitor section instructs the message processing section to send an advertisement message requesting for transition of from operating state into standby state to the network connection apparatus operating as a network connection apparatus, **regarding claim 19**, the master transition timer section is set with a skew time based on the priority set, **regarding claim 21**, and the master transition timer section is set with a skew time based on the priority set.

However, Srikanth et al (EP 1006702 A2) in a similar field of endeavor discloses the following features: **regarding claim 2**, a skew time calculated ("calculated skew time", recited in paragraph 0018, lines 35-52) based on the priority possessed ("port with the highest priority becomes the master router", recited in paragraphs 0018-0019), to set the skew time to the master transition timer section (fig. 3,, Master Router 215, recited in paragraph 0019, "setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) when the skew time is shorter ("with priority zero the skew time becomes shorter", recited in paragraph 0018, lines 35-52), so that, when the master transition timer section (fig. 3,, Master Router 215, recited in paragraph 0019, "setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) goes into a time-up ("occurrence of a startup event", recited in paragraph 0019), the state monitor section ("VRRP state machine", recited in paragraph 0020) instructs the message processing section to send an advertisement message ("transmission of a VRRP advertisement", recited in paragraph 0019) requesting for transition of from operating state ("master state transitions to backup", recited in paragraph 0019) into standby state("master state transitions to backup", recited in paragraph 0019) to the network connection apparatus operating ("master state", recited in paragraph 0019) as a network connection apparatus (fig. 1, LAN apparatus, recited in paragraph 0002, lines 19-25), **regarding claim 19**, the master transition timer section (fig. 3, Master Router 215, recited in paragraph 0019) is set with a skew time ("setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) based on the priority set ("priority of ports", recited in paragraph 0019, "port with the highest priority becomes the

master router", recited in paragraphs 0018-0019), **regarding claim 21**, and the master transition timer section ("setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) is set with a skew time ("setting the master down timer to the skew time", recited in paragraph 0018, lines 35-52) ("calculated skew time", recited in paragraph 0018, lines 35-52) based on the priority set ("port with the highest priority becomes the master router", recited in paragraphs 0018-0019). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features as taught by Kuo et al. by using features as taught Srikanth et al. in order to provide routing redundancy in case a router fails (see abstract for motivation).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hess et al (US 5,835,696), Jensen et al (US 7,092,354 B2), Critchfield et al (US 7,152,179 B1), Ichinohe et al (US 6,148,411) are cited to show methods and system related to claimed invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Candal Elpenord whose telephone number is (571) 270-3123. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

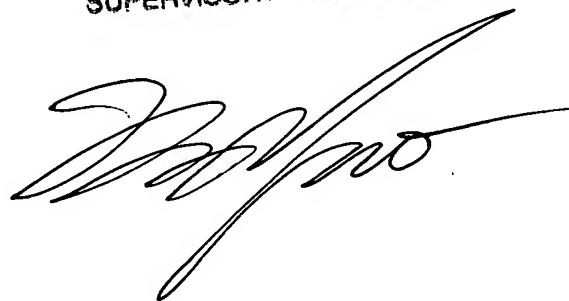


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CE

**KWANG BIN YAO**  
**SUPERVISORY PATENT EXAMINER**

A handwritten signature in black ink, appearing to be 'K. Bin Yao', written in a cursive style.